

REMARKS/ARGUMENTS

Favorable reconsideration of this application, as presently amended and in light of the following discussion, is respectfully requested.

Claims 9, 12, 14 and 19-20 are currently pending, Claims 9, 12, and 19-20 having been amended, and Claims 10, 11, and 13 having been canceled without prejudice or disclaimer. The changes and additions to the claims do not add new matter and are supported by the originally filed specification, for example, on Fig. 1 and page 21, lines 4-6.

In the outstanding Office Action, Claims 9-14 and 19 were rejected under 35 U.S.C. §102(b) as being anticipated by Quake (U.S. Pub. No. 2002/0058332); and Claim 20 was rejected under 35 U.S.C. §103(a) as being unpatentable over Quake.

With respect to the rejection of Claim 9 under 35 U.S.C. §102(b), Applicants respectfully traverse this ground of rejection in part and submit that the present clarifying amendment overcomes this ground of rejection. Amended Claim 9 recites, *inter alia*,

(a) a cross intersection portion at which a first continuous phase supplied from a continuous phase supply channel, a first dispersion phase supplied from a first dispersion phase supply channel, and a second dispersion phase supplied from a second dispersion phase supply channel intersect with each other;

(b) a first liquid feed device controlling the first dispersion phase;

(c) a second liquid feed device controlling the second dispersion phase; and

(d) a control device connected to the first liquid feed device and the second liquid feed device,

wherein (e) the first liquid feed device and the second liquid feed device are controlled by a signal from the control device so that microdroplets formed of the first dispersion phase and microdroplets formed of the second dispersion phase are sequentially produced.

In a non-limiting example of the invention defined by Claim 9, Applicants' Fig. 1 shows (a) an intersection portion (7), which is a cross intersection portion, at which a first continuous phase (2) supplied from a continuous phase supply channel (1), a first dispersion phase (4) supplied from a first dispersion phase supply channel (3), and a second dispersion phase (6) supplied from a second dispersion phase supply channel (5) intersect with each other; (b) a first liquid feed device (12) controlling the first dispersion phase (4); (c) a second liquid feed device (13) controlling the second dispersion phase (6); and (d) a control device (11) connected to the first liquid feed device (12) and the second liquid feed device (13), wherein (e) the first liquid feed device (12) and the second liquid feed device (13) are controlled by a signal from the control device (11) so that microdroplets (9) formed of the first dispersion phase (4) and microdroplets (10) formed of the second dispersion phase are sequentially produced.

Turning to the applied art, Quake is directed to a microfluid device for analyzing and/or sorting biological materials (see Abstract). In particular, Quake discloses a crossflow device for sorting microdroplets into two different droplets, droplets to be collected (○) and droplets to be wasted (●), which are sorted at a T-shaped intersection by a detection window (see Figs. 14 and 15).

However, Claim 9 recites that microdroplets formed of the first dispersion phase and microdroplets formed of the second dispersion phase are sequentially produced, but neither of these two types of microdroplets are droplets to be wasted. Therefore, Applicants submit that the embodiment shown in Figs. 14 and 15 of Quake fails to disclose the features of Claim 9.

The examiner also cites to paragraph [0119] of Quake, which describes that there are two or more droplet extrusion regions introducing droplets of samples into the main channel. Quake also describes in paragraph [0119] that the second droplet extrusion region is

downstream from the first droplet extrusion region, as illustrated in Fig. 22 of Quake shown below.

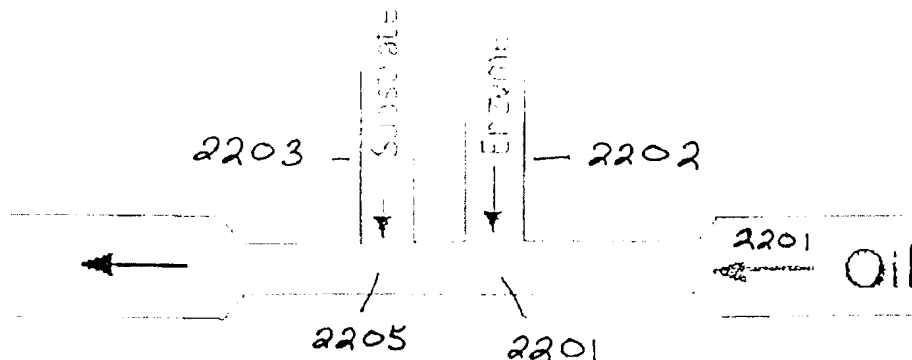


FIG. 22

Therefore, Quake describes a plurality of T-shaped intersections to supply different microdroplets to the continuous phase. However, Quake does not disclose or suggest “*a cross intersection portion at which a first continuous phase supplied from a continuous phase supply channel, a first dispersion phase supplied from a first dispersion phase supply channel, and a second dispersion phase supplied from a second dispersion phase supply channel intersect with each other.*” In other words, Quake fails to disclose a single cross intersection portion at which the oil, the enzyme, and the substrate intersect with each other.

Applicants emphasize that for anticipation, “**[t]he identical invention must be shown in as complete detail as is contained in the ... claim.**” See *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). (See also MPEP §2131).

Therefore, Applicants respectfully submit that amended Claim 9 (and all associated dependent claims) patentably distinguishes over Quake.

With respect to the rejection of Claims 19-20, Applicants respectfully traverse this ground of rejection and submit that the present amendment overcomes this ground of rejection. For example, amended Claim 19 recites, *inter alia*,

- (a) a microdroplet producing portion producing primary microdroplets and superfine satellite microdroplets produced together with the primary microdroplets;
- (b) a microdroplet supply channel supplying microdroplets formed of the primary microdroplets and superfine satellite microdroplets from the microdroplet producing portion;
- (c) an expansion portion connected to the microdroplet supply channel; and
- (d) a branching portion having a superfine satellite microdroplet recovery channel to recover the superfine satellite microdroplets and a primary microdroplet recovery channel connected to a front end of the expansion portion to recover the primary microdroplets.

With regard to Claim 19, the examiner cites to Figs. 14 and 15 which shows a sorting scheme for sorting two different types of droplets. More specifically, Figs. 14 and 15 show a crossflow device for sorting microdroplets into two different droplets, droplets to be collected (○) and droplets to be wasted (●), which are sorted at a T-shaped intersection by a detection window.

However, amended Claim 19 explicitly clarifies that the two types of microdroplets include “primary microdroplets” and “*superfine satellite microdroplets*.” Applicants submit that the wasted droplets in Quake (which the examiner previously interpreted as being “satellite droplets”) are not “superfine satellite droplets.”

Therefore, Applicants submit that Quake clearly fails to disclose or suggest all of “(a) a microdroplet producing portion producing primary microdroplets and superfine satellite microdroplets produced together with the primary microdroplets; (b) a microdroplet supply channel supplying microdroplets formed of the primary microdroplets and superfine satellite microdroplets from the microdroplet producing portion; (c) an expansion portion connected

to the microdroplet supply channel; and (d) a branching portion having a superfine satellite microdroplet recovery channel to recover the superfine satellite microdroplets and a primary microdroplet recovery channel connected to a front end of the expansion portion to recover the primary microdroplets,” as defined by amended Claim 19.

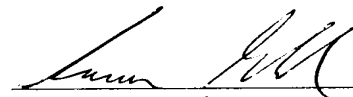
Therefore, Applicants submit that amended Claim 19 patentably distinguishes over Quake.

Amended independent Claim 20 recites features similar to those of amended Claim 19 discussed above. Therefore, Applicants submit that amended Claim 20 patentably distinguishes over Quake.

Consequently, in light of the above discussion and in view of the present amendment, the outstanding grounds for rejection are believed to have been overcome. The present application is believed to be in condition for formal allowance. An early and favorable action to that effect is respectfully requested. Furthermore, the examiner is kindly invited to contact the Applicants’ undersigned representative at the phone number below to resolve any outstanding issues.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,  
MAIER & NEUSTADT, L.L.P.



\_\_\_\_\_  
Gregory J. Maier  
Attorney of Record  
Registration No. 25,599

Customer Number  
**22850**

Tel: (703) 413-3000  
Fax: (703) 413 -2220  
(OSMMN 07/09)

Sameer Gokhale  
Registration No. 62,618